

THESES OF DOCTORAL DISSERTATION

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**INTERRELATIONS BETWEEN READING COMPREHENSION AND NOTE  
WRITING AT YOUNG ADULTS**

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## **1. Introduction**

The turn of the 20th and 21st centuries witnessed far-reaching social changes. Many of these changes are forerunners of new development tendencies, but from the aspect of the use of our native language most of the changes are not advantageous. Recent research findings indicate that native language skills and learning abilities based upon them suffer more and more disturbances. Most of the problems at adult age come from the difficulties of speech comprehension (see e.g. Imre 2007).

Most researchers believe that the reason behind the difficulty of processing information received through speech is that our interpersonal connections suffer from the wide-spread use of multimedia devices, and our methods and habits of communication change. Less attention is paid to adequately teaching native skills to students, and there are other adverse circumstances as well. Such an unfavourable factor is the unsoundly accelerated way of life, which brings about a more rapid pace of speech and a decrease of quality of speech. In our environment there is an increased background noise, and people tend to articulate their speech less precisely and construct their sentences in a simplified way. All these factors make understanding more difficult (cf. Bóna 2005; Bóna 2007; Gósy 2000a; Heltai – Gósy 2005).

There have been considerable changes in the Hungarian educational system in the past few decades as well. The overall tendency is that qualitative parametres have been gradually superseded by quantitative ones. The material to be learnt has increased, and so has the number of those who wish to go to secondary and tertiary education. In large groups the traditional, oral ways of transferring information is gradually relegated to the background, to be replaced by modern technical devices and methods (e.g. PowerPoint, photocopies) in order to make the most effective use of the time-frame available. Students have fewer and fewer opportunities to talk about factors that impede them in understanding oral communications (cf. Szende 1987).

The communication of lecturers at universities and colleges is not any more difficult today than it was before, but it still appears to be too complicated for the comprehension skills of students. At the present thesis an effort is made to survey the difficulties of college students in making notes at classes, from the aspects of disturbances in their listening comprehension skills.

## **2. Structure of the Thesis**

The thesis consists of a preface, 6 main chapters and a conclusion, complemented with a list of references and supplements containing tests and other auxiliary materials used for the surveys.

The **Preface** presents a brief description of the problem and the objectives to be attained.

**Chapter 1** is the Introduction divided into 6 further subchapters.

**Chapter 1. 1** deals with the typical mechanisms of comprehending and processing speech, and also defines some of the most common types of comprehension difficulties that adversely affect the basic- and partial processes of perceiving and understanding the speech of another person.

**Chapter 1. 2** is a brief survey of the universally accepted methods of analysing and examining speech perception and understanding.

**Chapter 1. 3** and **1. 4** is a summary of the procedures through which it is possible to record live speech in writing, with special attention to making abridged notes in handwriting. In order to understand this, it is indispensable to provide a comprehensive summary of the most important ideas and concepts related to the operation of memory systems, the organization of a mental lexicon and the processes of accessing the elements in the mental lexicon.

**Chapter 1. 5** discusses one of the major difficulties in the work of a person taking notes from live speech, and that is the limits and possibilities of dividing attention between several things simultaneously.

**Chapter 1. 6** describes the connection between the (sometimes hidden) difficulties in processing speech and the specific or complex learning difficulties that tend to appear later in the life of the individual. Contains some of the reasons supposed to be behind learning

problems at adult age: genetical, organic or functional disturbances and the role of factors of the external environment. There are references to the possibilities of correction as well.

In **Chapter 2** the objectives and most important initial hypotheses of the research are put forward.

It is assumed that young adults, when enter higher education, face a number of learning difficulties when they make efforts to adapt to the new circumstances of acquiring information. They need to attend, perceive, interpret lectures, make notes, and in these processes the reasons of problems, formerly perhaps hidden, surface: disturbances in perception and listening comprehension, and the consequent difficulties in performing writing.

The objective of the thesis is to survey the learning difficulties of young adults in a way it has not been carried out before. There are many observations about the phenomenon that are largely subjective but, to our knowledge, no similar research, underpinned with systematic tests, examinations and data regarding the listening comprehension and note making difficulties of young adults, has so far been made.

**Chapter 3** describes the circumstances of the research, including the individuals involved in the experiment and the methods used.

**Chapter 4** is the presentation of all the finding of the research, subdivided according to the individual experiments.

**Chapter 4. 1** is an analysis of notes made simultaneously of interpreted speech (here: lecture read out). The analysis was made from the aspect of the success of interpreting/processing the speech. The experiment was made with the participation of 50 first-year college students majoring in Hungarian language and literature.

The purpose of **Chapter 4. 2** is showing a targetted listening comprehension test. As part of the experiment, we intended to find out how the perception of interpreted speech and the activation of verbal memories are influenced, if 1) questions related to the speech are to be answered afterwards individually, 2) an answer is to be chosen from a set offered, 3) gaps are to be filled in sentences related to the text. The experiment was made with the participation of 90 first-year college students majoring in Hungarian language and literature.

**Chapter 4. 3** contains an analysis of notes made by students at natural, semi-spontaneous speech (regular lecture). The notes were used as a corpus for an analysis of the types of speech perception and comprehension disturbances. At the lecture (literary theory) 21 first-year undergraduate students of Hungarian language and literature were present.

**Chapters 4. 4 and 4. 5** evaluate the success of making notes of spontaneous speech at two experiments carried out under natural circumstances (regular college classes). In the first instance, we analysed the notes made by 11 first-year undergraduate students at a lecture in Hungarian literature. In the second case, the notes of 12 first-year post-secondary students studying to be secretaries were examined.

In **Chapter 4. 6** the results of the complex listening comprehension and speech perception tests, carried out with GMP-diagnostics (cf. Gósy 1995/2006) are described. 17 participants were involved in the experiment. An effort was made at compiling a test material that, similarly to the sub-tests of GMP, represents the entire process of speech perception and is suitable for revealing difficulties of speech comprehension and perception mechanisms at adults.

**Chapter 5** outlines the possibilities of the practical applicability of the research project described in the thesis. In the chapter several guidelines are put forward that are designed to improve the note taking technique of young adults and the conscious use of which would, in our opinion, contribute to improving the speech perception, listening comprehension skills and the entire process of using the language in writing.

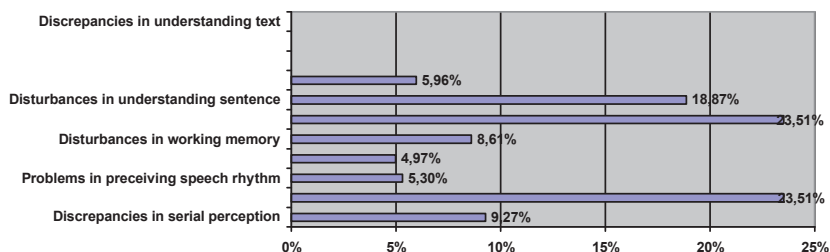
**Chapter 6** is the summary of the result of the research, containing the conclusions afforded by the findings.

The **Conclusion** gives a short summary of the main findings of the thesis revealing all the innovations of the research at the same time.

### 3. A Brief Summary of the Research Finding

The findings of the present research may confirm the assumptions that the listening comprehension skills of young adults have drastically worsened over the past twenty years (Illényi 2003) and justify our hypothesis that college students struggle with considerable discrepancies in their listening comprehension and speech perception skills.

The analysis of **notes taken of interpreted speech** revealed a high number of and several types of speech processing difficulties (Figure 1). The number of cases of erroneous perception and comprehension/interpretation largely surpassed our initial assumption. Our findings therefore appear to refute that interpreted lecture is the best speech form for students. The significance of this result is great, as it indicates that university/college lecturers are not right when they wish to bridge the speech perception and not taking difficulties of students by omitting spontaneous additions (and use exclusively interpretative communication).

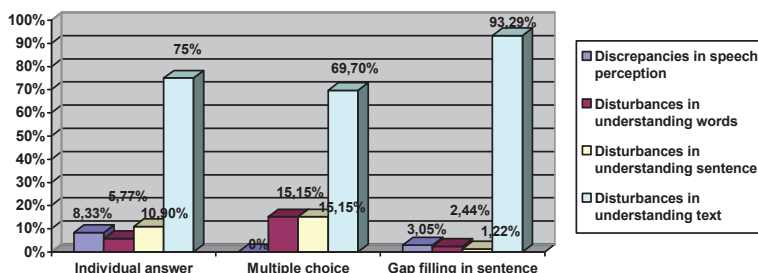


**Figure 1**  
**Disturbances of Speech Perception in Notes Taken from Interpreted Speech**

According to the notes, the problem of identifying speech sounds is present at almost all the students.

One of our most important findings is that there appears to be a parallelism between the disturbances at the general level of understanding speech and those at the various levels of perception. The most conspicuous is the interrelation between the discrepancies of identifying speech sounds and that of understanding words. The notes of the students aptly illustrate that an apparently simple misunderstanding will first disrupt the meaning a word, than that of a whole sentence (e.g.: "*Valójában mindaz stressz szó, amit mi annak tekintünk.*" – originally "*stresszor*" [stressor] in the Hungarian sentence, and not "*stressz szó*", ["stress word"] etc.).

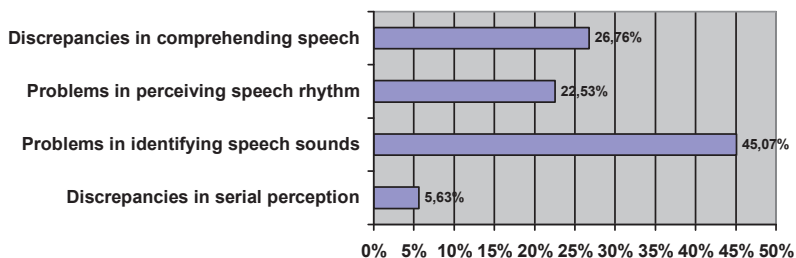
The tests sheets for evaluating listening comprehension were assessed similarly to the continual notes taken from interpreted speech were: the written responses were compared with the original text, and the faults caused by disturbances in the speech perception were arranged according to Gósy's method (2005) (Figure 2). At the compilation of the questions, however, the results of the previous experiment were taken into account, so the questions were targetted to the points that usually caused students the most of the difficulties during taking continuous notes.



**Figure 2**  
**Results of the Reading Comprehension Test**

The data received suggest that the students doing the gap-filling exercise performed the lowest. Their difficulties indicate that the partial statements or partial information related to the test impede rather than assist the students in recalling or interpreting the text heard. Our original hypothesis was that the sentence structure and certain lexical elements provided were going to assist students in understanding the text heard, they were going to discover the context and recall the major points of the text. In Hungary, previous research into the comprehension of sentence structures suggested that the structure had a more important role in the comprehension of a sentence than the contents of the sentence itself (cf. Pléh 1984). It was, however, not confirmed by our experiment.

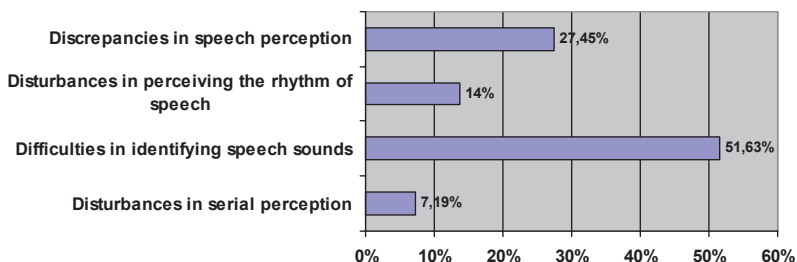
Similarly to processing interpreted speech, the highest number of mistakes in the **notes taken from semi-spontaneous lectures** can be associated with the discrepancies in the identification of speech sounds (Figure 3).



**Figure 3**  
**Discrepancies in Speech Processing in Notes Taken from Semi-Spontaneous**

The mistakes committed by students taking notes from semi-spontaneous lectures reflect how the problems of speech perception lead to serious difficulties in listening comprehension, what is more, to discrepancies in recognizing contexts and interrelations. For instance, several students confused *gépiesség* [mechanical] with “*képiesség*” [visual, image-like]. Disturbances in speech comprehension reflect the uncertainties in preception the following way: “*Artistic approach to reality eliminates the visual nature of everyday life (...)*” – instead of *mechanical* nature. These are important findings, as they indicate that faults emerging at lower levels of the hierarchy do not only influence the written reflection of what has been heard, but they affect the entire process of speech perception and comprehension, thus hampering the process of learning later on.

Students who were **taking notes** during **spontaneous lectures** were apparently more successful than those taking notes from semi-spontaneous or interpreted lectures. In the first instance, we analysed the notes of students participating in literature lectures (Figure 4).

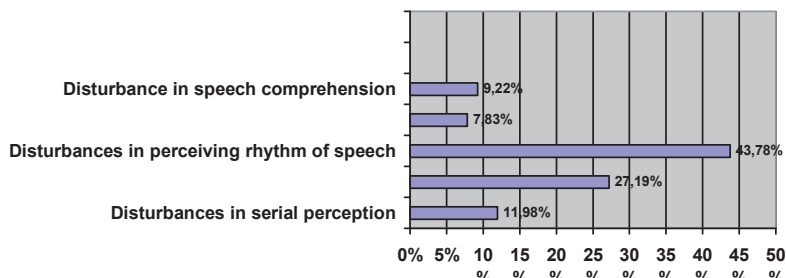


**Figure 4**  
**Disturbances in Speech Processing Found at Notes Taken at a Spontaneous Lecture in Literature**



The number of instances of misperception of speech sounds is also significant in this case, but these mistakes affect the level of overall speech comprehension to a much lesser degree than in the previous experiments. Misperception was characteristic at new, unknown words, personal names, titles of poems and books, e.g.: "*Dalajdas*" (instead of *Danaida*), "*Indus*" (*Imrus*- a name), "*Özönvízek, tűzesők, üstökös*" (*Flood, rain of fire, meteors* in the accusative instead of nominative) etc.

Students of a secretarial course were involved in the second experiment carried out with a spontaneous lecture. According to the notes of the students, more than half of all their mistakes were associated with problems in perceiving the rhythm of speech (Figure 5).



**Figure 5**  
**Disturbances in Speech Processing Found at Notes Taken at a Spontaneous Lecture in Secretarial Skills**

Rhythm in this context means the recognition of the specific timing of the ends of words and the duration of syllables (Gósy 2000b). If it is misperceived, students will write certain elements as one word while they should be written as separate elements and the other way around. These mistakes, however, belong primarily to the domain of correct spelling, and do not affect comprehension so adversely.

Similarly to the examination of the students' ability to identify speech sounds, in this experiment mistakes in serial perception caused problems in comprehending and analysing words.

Research into speech perception so far have largely concentrated on problems in childhood, and relatively little attention has been paid to the problems of people of 14-18 and those of adults. There are, therefore, no readily available diagnostic methods for testing the speech comprehension problems of adults.

In order to complement the analysis of the notes, we compiled a practice material, based upon certain sub-tests of GMP (cf. Gósy 1995/2006). We intended to use the five exercises for testing the comprehension of word, sentence and text at young adults, and to assess their short-term verbal memory (and working memory). The language corpus was selected and planned so as to obtain information about acoustic, phonetic, phonological and grammatical features of the perceptive mechanisms through which an individual analysis and comprehends a text.

An examination of short-term verbal memory provides information about the work of a clearly defined segment of human memory. At the sentence comprehension task the problems of speech perception and speech comprehension overlap. The analysis of the working memory, the exercises of making drafts and taking notes revealed a significant number of discrepancies of speech perception and listening comprehension.

## 4 Conclusions

The most conclusions afforded by this research are the following: 1) discrepancies in speech perception and comprehension may in a hidden way follow the adult life of an individual, and it is likely to cause considerable difficulties in individual and social progress, further education and successful integration in the labour market; 2) in opposition to the original intentions, efforts at accelerating the process of learning, e. g. giving emphasis to interpretive lectures and dismissing spontaneous lectures, do not make speech processing any more efficient; 3) our experience suggest that there is a need to teach the technique of taking notes based upon listening comprehension, even as early as the secondary education.

The new ideas emerging in the 21st century encourage life-long learning. There are many ways of learning. A large proportion of knowledge and skills, however, reaches the students through interactions that are based upon live speech, the use of the language in practice. Within the framework of schools, a significant amount of material is relayed to the learners by the lectures of the teacher. In order to make the most of the new information received, we must first be able to understand and interpret it. A basic pre-condition of learning is therefore good listening comprehension.

We must in some way record the result of understanding what teachers and lecturers relay to us. As the capacity of our memory systems is not infinite, the material is usually recorded in writing. One of its ways (and certainly one of the most common) is taking notes in handwriting.

The technique we use for taking notes is of extraordinary importance, as inaccurate extracts may cause difficulties when re-reading and using them for learning purposes. We need to be able to adapt to the contents of the material received, as well as to the style of the speaker, lecturer. It means that the listener should be able to place themselves in the specific situation both intellectually and emotionally. The listener must be prepared for the fact that not all lecturers speak correctly, not all lectures are logically structures and easily comprehensible. Taking notes from speech is therefore a mental process that requires multiple division of attention. To that added is the work of the listener's own linguistic processing system. In this respect, processing live speech by the listener is carried out by more complex and complicated mechanisms and through a higher number of steps than for instance in the case of an everyday conversation.

Recording a lecture in writing is not a simple process even when the listener's speech perception and comprehension skills are not impaired. Our findings suggest that healthy and

undamaged perception mechanisms are possessed by far not all young adults. In this thesis we make an effort for the first time to outline the conceptual and methodological principles of a technique of note taking that 1) makes taking manuscript notes easier for healthy young individuals with a normal perception mechanism, and 2) includes a feedback mechanism that is hoped to bridge hidden discrepancies in speech perception and comprehension skills that cause learning difficulties for young adults. To that end, we used 1) the results of research into speech perception and comprehension disturbances, 2) information available about not impaired speech processing mechanisms, 3) ideas regarding the process of writing, 4) all psychological information related to the function of the linguistic system, and 5) some features of a special note taking technique, stenography, objective and subjective experience of its use.

In our hypothesis, learning the Hungarian stenographic system at adult age may help young adults in overcoming their listening comprehension and specific writing difficulties. It may re-shape and re-structure their mental information and skills about language, and may serve as a correction factor for their speech perception discrepancies even at adult age. Research projects intended to support our hypothesis are now underway, but the results are not yet sufficient for publication. According to our initial hypothesis, young adults struggling with speech perception or listening comprehension and/or specific writing difficulties will not be able to fully learn to use stenography at a high level, but the learning process itself will, in several respects, positively influence their use of the language.

It is very difficult to chart the interrelations between speech perception and comprehension difficulties and the difficulties of taking notes. We therefore look upon the present research as an "experiment" (from a methodological aspect it is perhaps more precise to term it "observation"), as it was carried out with the participation of individuals randomly selected from a specific population in different experimental situations (although efforts were made to make the situations similar). The findings are remarkable, but not representatives, as a much larger group would be necessary for that. Another difficulty has been the definition of the norm: what to regard as average or below average performance, as it was not possible to set up a control group. The elimination of these shortcomings is a task for future refinement and revision of the research methodology.

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